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10/775,248	02/11/2004	Kazuhiko Nojo	0649-0942P	1092

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EXAMINER	
PADGETT, MARIANNE L	
ART UNIT	**PAPER NUMBER**
1792	

NOTIFICATION DATE	DELIVERY MODE
04/07/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/775,248	NOJO ET AL.	
	Examiner	Art Unit	
	MARIANNE L. PADGETT	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/31/2007 & 11/21/2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,7 and 8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5,7 and 8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. Applicants amendment & response of 12/31/2007 (replacing 11/21/2007), significantly clarifies the claim language, thus removing most 112, second rejections, except as indicated below. It is a further noted that as "binder" is a term commonly used in many arts, and applicants have chosen not to further describe it, it will be considered to encompass every and any material that may be considered a binder, that has ever been used, as is consistent with the scope in which it is claimed.

2. Claims 1, 3-5 & 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 1 is still vague and indefinite, since the scope of the amount of the "residual solvent to binder ratio" remaining at the end of the 30 seconds drying time is also unclear, as it is still impossible to determine from the claims, or in light of the specification from the limitation as disclosed on pages 5 or 8, what **basis** is used to calculate the range of "30 % or less" has not been claimed or disclosed. Since such a **percentage** could employ the **weight** of the binder, the **volume** of the binder, the **moles** of binder material, etc., none of which would be expected to give the same range of values for percentage of equivalent quantities, especially considering that differences in solvent &/or "binders" used can create further variation depending on the measurement means used in the calculation of percentage remaining solvent.

In claim 4, the term "conductive" can be considered ambiguous, since both electrical conduction & thermal conduction can be used to cause heating, where the object being heated is in contact with the heater. The examiner continues to note that the disclosure on page 11, lines 5-20, especially 17-20, would appear to imply that a thermally conductive heater is intended, since the exemplary heating roll shown for conductive heater 41 in figure 1 employs hot water, although the alternatively taught "plate heaters" are not specific as to what is meant by "conductive" and could employ either or both means of producing heat. Applicant citation of the pages already cited by the examiner & page 16, line 7-page 17, line 9,

which adds nothing significant, only exemplary use without definition, that does not remove the above ambiguity. Alternately, the disclosure could merely be considered broad so as to cover either thermal or electrical conductivity employed in heaters, however applicant's response does not clarify their intent.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1& 5 are rejected under 35 U.S.C. **102(b)** as anticipated by **or**, in the alternative, under 35 U.S.C. **103(a)** as obvious over **Arter et al.** (4,365,423).

As previously discussed, Arter et al. teach a process of drying sheet material that has been coated with a layer or layers of liquid coating composition, where it is taught that the substrate material may be any material whatever, as long as it may be coated with the liquid coating composition, with typical examples of useful sheet material taught to be polymeric films of cellulose esters (abstract; col. 6, lines

39-52, especially 49). The examiner notes that the specifically claimed cellulose triacetate is a specific species of cellulose ester, and as such may be considered part of, or encompassed by the generic teaching, which designates a well-defined & relatively small group of compounds that includes cellulose triacetate (CTA), such that this teaching may be considered to read on cellulose triacetate, or **alternately** it would have suggest to one of ordinary skill in the art to employ the process with any specific cellulose ester, such as cellulose triacetate, as it is a commonly employed polymeric fill material, and the technique is also taught the widely applicable.

Arter et al. contemplate a wide variety of uses, including for photographic materials & processes, and a wide variety of coating materials, stating their process is particularly advantageous in the **coating & drying** of **solutions of polymeric resins** in organic **solvents**, noting that such solvents are relatively volatile, mentioning typical organic solvents as including ketones, such as acetone or methyl ethyl ketone; hydrocarbons, such as benzene or toluene; alcohols, such as methanol or isopropanol, etc. Note that polymeric resins as taught by Arter et al. are considered consistent with possible meanings of "a binder" in the claims. Additionally, the patent teaches that the "weight percentage of solids in the coating composition can be as high as 90% or more" (col. 6, lines 10-11), although they acknowledge that the percentages of about 1-20% by weight are more typical. The examiner notes, that given this teaching of weight percentages of solids, where the solids may be considered equivalent to the binder for the claims has written, that any of the coating compositions having the taught solids weight percentages inclusive of 70-90% or more, will automatically meet the claimed "residual solvent to binder ratio is reduced to 30% or less" (at least for weight % means of calculation) before drying is even started, if one considers the basis of the calculation for the percentage to use weight for the calculation, and that "binder" as undefined can be all the solids, excepting particulates embedded therein. (Since the basis of calculation as discussed above is not definitively specified, any known means of calculation must be considered as

included/possible for determining the claims meaning.) See col. 5, line 32-38, especially col. 5, lines 33-35, 44-47, 50-62, & 68-col. 6, lines 13; & col. 9, lines 4-17.

It is **further noted** that the amount of residual solvent has even less significance, if one considers that its percentage can wildly vary with respect to the total percentage (basis unknown) of the total composition, hence applicants' claims are based on a residual solvent to binder ratio whose basis of calculation is unstated, for a coating composition in which the solvent has an unknown overall percentage with respect to the total composition, as it is only defined with respect to one very broadly claimed component of it otherwise undefined coating material. Even though the particular substrate material (base film) is particularly defined, since there's no way to calculate any definite percentage of solvent that is present with respect to the overall coating in the time period claimed, how much of an indeterminate amount is left after a specific time, has very little significance & cannot be considered to necessitate any particular affect or lack thereof on the substrate.

Figures 2-4 show contemplated coating & drying apparatus, discussed on col. 6, lines 53+ & col. 12, lines 53 through col. 14, with col. 6, lines 61-68, noting that multiple coatings can be applied simultaneously, and dried together, with typical coatings speeds being about 10-300 m/minute for the taught process; and with what coverage of the coating composition is taught be a matter of choice dependent on many factors, giving typical values employed in the method ranging from about 0.1-1000 cubic centimeters per square meter, i.e. 0.1-1000 ml/m^2, or more usually 5-100 cm^3/m^2, i.e. 5-100 ml/m^2, thus significantly overlapping with applicants' claimed coating amounts.

Arter et al. teach the use of air or alternately inert gases at elevated temperatures to cause the drying, noting that a number of factors affect the drying process, including thickness and composition of the coating layer, speed of the conveyor through the dryer, volumetric flow rate, temperature & moisture content of the drying medium supplied to the dryer, etc. (col. 9, lines 51-68+), with the use of multiple drying zones discussed (col. 12, lines 34-52; figures 1 & 4), plus the illustration in figures 1-2 (ref #'s 16

& 18) & 4 (ref #'s 48 & 50) showing the coating mechanism are adjacent to the entrance to the dryer apparatus, with teachings that "immediately after being coated, web 10 passes through a series of drying chambers..." (col. 12, lines 67-68 in the discussion of figure 1 on col. 12, lines 53-col. 13, lines 35). Note that since the hot gas medium flows through the chamber & impinges on all sides of the film, heating inherently occurs on all sides of the film, thus reading on the claim of heating a side opposite the coated side. While the general discussion of the apparatus does not give specific distances between coating & drying mechanisms, nor times till drying is started or production percentages at 30 seconds, the taught conveyor/coatings speeds & illustrated proximity suggest considerably less than 10 seconds to initiate drying after coating, with the specific examples providing values consistent with this evaluation of the teachings. Example 1 on col. 15-16 employs the apparatus of figure 4 with a web speed of 45.7 cm/second, teaching a travel distance of 1 m within the coating compartment, then passes through the slot into the dryer, where each of 4 compartment is about 0.3 m in length, with drying completed on leaving the fourth chamber, except for a small amount of residual solvent removed in subsequent curing. Given speed & dimensions, approximately 2 seconds were employed to coat & enter the dryer, **thus drying is started within 10 seconds** for apparatus employed by the process, with 4(0.3) = 1.2 m, thus somewhat less than 3 seconds employed for drying, hence the process is well within applicants' claimed time limits. Example 2, which employs the figure 1 apparatus, teaches a time of 1.9 seconds in the coating zone & a total time from the coating application to the dry point (i.e. completion of drying) = 27 seconds (col. 16, lines 56-61), thus again within the claim time limitations. Given the general teachings on the immediacy of the drying & illustrated apparatus to be used in the invention with the examples providing exemplary times applicable to these apparatus, all features of these claims may be considered covered. Alternately, as the specific examples discussed do not provide measurements or values of what constitutes "a small amount of residual solvent" or "the dry point", and these examples did not start out with a weight percentage of the polymeric resin = solids of a percentage that inherently meets applicants' claimed

percentage range, and noting that Arter et al. does not explicitly teach the claimed unclear degree of drying, or the use of 70-90% by weight solids in compositions applied to CTA substrates, however it would have been obvious to one of ordinary skill in the art to employ the taught apparatus using operating parameters as discussed in the examples as starting points for optimizing for particular compositions & coating thickness, etc., for any of the suggested percent solids for the compositions, on any of the suggested substrates, as the reference teaches that all these features are useful together, thus compositions starting with 30 % by weight of solvent, in claimed amounts on cellulose ester substrates, such as CTA, that are dried within the claim time limits, are suggested by the teachings as effective & useful combinations of taught limitations, so read on these claims. It also would have been obvious to one of ordinary skill in the art, that for compositions with a lesser percentage of solids by weight to dry them to a useful degree, where it is further noted that since a composition having 90 weight % solids, thus only 10% solvent, is considered a **liquid composition** by these teachings, that in light of the Arter et al. disclosure, a teaching of only a "small amount of residual solvent" or achieving any "dry point" would have been considered by one of ordinary skill in the art to be a wt. % less than what could still be called a liquid composition, i.e. in all probability less than 10% by weight solvent remaining, thus making the claimed range of residual solvent after drying covered by the teachings, or obvious in light of the overall disclosure.

5. Claims **3-4 & 7-8** are rejected under 35 U.S.C. **103(a)** as being unpatentable over Arter et al. as applied to claims 1 & 5 above, and further in view of **Maehashi Tatsuichi et al. (**(JP 10-312054) formal translation supplied) or **Ito et al.** (2003/0228547 A1).

Claims **3 & 7** are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Arter et al**. as applied to claims 1-2 & 5-6 above, and further in view of **Dessauer et al.** (3,909,328) or **Cescon et al.** (3,615,454).

Claims 3 & 4 recite specific means of drying via providing heat by either the conventional means of generic radiant heating, or alternatively by the conventional means of a contact heater, which ambiguously may be electrically conductive or thermally conductive, either of which would be conventional heating means, as an electrical conductor can produce resistance or inductive heating depending on its characteristics, however as the specification provide some examples of contact heating via thermal conduction, this possibility will be discussed. It is also noted that since "volatile solvent" is essentially inclusive of all possible solvents, while "binder" is ambiguously inclusive of any coating material that can be included in a liquid coating composition (i.e. dissolved, dispersed, emulsions, suspended, or the like), and such a wide variety of deposition compositions have no comment affect on the particular content of the base film, cellulose triacetate, such that when one starts the drying & the time that it takes to dry **to** a particular solvent percentage (that may even have been greater than what one started with to begin with!), has insufficient context to have any patentable significance, especially considering the claimed heating means are broad general categories of conventional types of heaters.

Arter et al. differs from these claims by employing hot air drying techniques, instead of radiant heaters or thermal conduction heaters, however such alternate techniques are old and well-known in the drying arts as can be seen in Tatsuichi et al. (abstract; [0068-72]), who teach coating base materials, inclusive of plastic films ([0011]) with layers of polymerizable material having a composition including solvent, which is dried in a process that takes 5-60 seconds to reach a specified residual amounts of solvent, where [0069] appears to teach the equivalent use of infrared heaters, hot calendar roll contact heaters & warm air, noting that discussion of composition, such as in [0077+] that is a hundred parts by weight photopolymerizable material & 900 parts by weight solvents, where "the dried film layer was 1.4 μm", with table 1 (page 28 formal translation) indicating 3 examples for pairs of drying conditions, with time to 100 mg/m^2 residual solvent (20, 12 & 35 seconds) & final residual solvent (10 mg/m^2 , 3mg/m^2 , or 5 mg/m^2). Given similar time scales & overlapping materials, as well as teaching of equivalents of the

three heating techniques, it would have been obvious to one of ordinary skill in the art to employ any of the three alternative conventional means of heating to produce drying times as taught & claimed, employing routine experimentation to determine particular advantageous time means, depending on particular compositions & materials.

Alternately, Ito et al. (547), who teach typical support substrates for depositing silver halide photographic light sensitive material, include using triacetyl cellulose ((TAC) = cellulose triacetate (CTA)) substrates, noting moisture problems in the prior art when coating with solutions, thus teaching particular drying techniques that include processing where dry to dry time (i.e. start of the processing techniques of developing, fixing, washing, ending with drying) take from 25-160 seconds total, with the dry time depending on ambient conditions, and teaching that any known method can be employed inclusive of hot air, heated rollers, or far infrared (abstract; [0008]; [0119]; [0182-183]).

Alternately, Cescon et al. teach useful substrates for depositing solutions containing radiation sensitive materials include CTA for the substrate, where solvents employed in the solution may include alcohols, or ketones (MEK), etc., and evaporation of the solvents maybe via forced air or radiant heating (abstract, col. 18, lines 32-59; & col. 24, lines 33-72, especially lines 52-71).

Alternately, Dessauer et al. teach coating a film of photosensitive composition including a binder & solvent on a carrier material, which may be a cellulose acetate carrier support, where the coating after application is dried to remove the solvent using forced air evaporation or radiant heat (abstract; col. 8, lines 58-76, especially 59; col. 9, lines 12-34).

It would have been obvious to one of ordinary skill in the art to employ alternative heating techniques to affect results as taught in the primary reference, given that for a particular substrate material of CTA = TAC, which as seen in any of the references of Ito et al. or Cescon et al. or Dessauer et al., are old and well-known to be coated with resin or binder solutions having solvents that are required to be dried, via hot air techniques as taught in the primary reference, or via alternate techniques inclusive of

infrared or thermal contact heating as discussed above, thus providing expectations of the equivalent & effective results of use of the alternative heating means to affect drying.

6. Other art of interest previously cited included: Malhotra et al. (6,423,370 B1), who have teachings overlapping with Arter et al., employing multizone hot air drying, but directed to a narrower scope of compositions, and substrates that explicitly include CTA (col. 4, lines 54-59 & col. 15, lines 50-col. 16, lines 23); Iwata et al. (2002/0015123 A1) & Kawanishi et al. (WO 02/101447 A1), both of which have teachings equivalent to the Japanese reference by Ikeda Shinji et al. cited by in applicants' IDS (& the JPO), all of which coat CTA films with solutions of interest, with teachings employing generic drying.

7. Applicant's arguments filed 12/31/2007 & discussed above have been fully considered but they are not persuasive.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Marianne L. Padgett/
Primary Examiner, Art Unit 1792

MLP/dictation software

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